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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/528,155

03/17/2005

Shuichi Kubota

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NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

MILLER, DANIEL H

ART UNIT

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1794

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DELIVERY MODE

03/17/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/528,155	Applicant(s) KUBOTA ET AL.	
	Examiner DANIEL MILLER	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/26/2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/26/2009 has been entered.

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-12 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 17-27 of copending Application No. 11/822,484. Although the conflicting claims are not identical, they are not patentably distinct from each other because they encompass the same base limitations and composition minus references to shape and intended use language not indicative of patentability. While the copending application cited above does not necessarily recite the same phosphate compounds it is not clear that this denotes a patentable distinction given that a wide variety of similar phosphates claimed by both references could be employed and would be obvious to one of ordinary skill in the art. No patentable distinction is seen.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

3. Claims 1-12 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 17-29 of copending Application No. 10/530,717. Although the conflicting claims are not identical, they are not patentably distinct from each other because they encompass the same base limitations and composition minus references to shape and intended use language not indicative of patentability. While the copending application cited above does not necessarily recite the same phosphate compounds it is not clear that this denotes a patentable distinction given that a wide variety of similar phosphates claimed by both

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references could be employed and would be obvious to one of ordinary skill in the art.

No patentable distinction is seen.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greinke (US 6,746,768) in view of Olstowski (US 3,423,496).

2. As evidenced by EP 0824134 A1.

3. Greinke teaches an expanded graphite sheet comprising graphite natural graphite flakes subject to an intercalating agent (column 5 line 55-65). The intercalating agent is a mixture including inorganic acid and other oxidizing agents; where in the intercalating agent can be in an exemplary embodiment 10 to about 50 pph per 100

parts graphite flakes (column 6 line 27-33). This is considered an overlapping range with applicants claimed range. In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

4. The oxidizing agent can include an organic acid and a strong oxidizing agent mixed into said acid (see column 6 line 5-10).

5. Olstowski teaches a graphite structure (such as a gasket; column 1 line 20-25) formed from expanded natural graphite comprising oxygen-containing organic liquids including acids, esters (column 1 line 65-72), and organophosphates (column 2 line 1). Organophosphates are esters of phosphoric acid (See Wikipedia) and have organic phosphoric acid moieties.

6. The graphite material of Olstowski is treated with organophosphate in order to provide a resilient material with increased ability of the graphite to be exposed to extreme temperatures for extended periods (see column 1 lines 20-60).

7. In the first instance; Greinke teaches the use of organic acid and other oxidizing agents in intercalating material for natural graphite and given Olstowski teaches the use of organic liquids comprising acids, esters and organophosphates as a treatment for expanded vermiform natural graphite, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use similar phosphorous compounds including esters thereof inclusion as intercalating solutions given there similar properties and known inclusion of organic acids and oxidizing agents into graphite material as intercalating agents (see Olstowski above).

8. In the second instance, it would further have been obvious to one of ordinary skill in the art at the time of the invention to provide organophosphates and esters thereof (as claimed by applicant), within the claimed levels of concentration similar to those levels taught by Greinke or otherwise optimize their percentages in order to maintain maximum structural integrity, and resilience of the graphite while treating the graphite material to provide a resilient product with increased ability of the graphite to be exposed to extreme temperatures for extended periods (see column 1 lines 20-60); which would be beneficial in applications such as gaskets, heat spreaders, or other thermal management systems (especially in high temperature environments). .

9. The reference, discussed above, is silent as to the claimed structures of claims 3-7.

10. Further, it would also have been obvious to a person of ordinary skill in the art at the time of the invention to use phosphorous compounds, including those claimed in applicant's claims 3-7, because all organophosphates are taught by Olstowski to be capable of use as part of resilient high temperature resistant treatment. Therefore, absent a showing of criticality or unexpected results with respect to the claimed compositions it would be expected based on the broadly taught and used compounds available as oxidation agents in the treatment or intercalation process that any organophosphate would be appropriate for use in the current invention including those claimed by applicant. It would have been obvious to a person of ordinary skill in the art to vary an oxidative protective -R, -OH, or -H groups and still get a phosphoric acid or

ester with protective and/or expansive properties at high temperatures. No patentable distinction is seen.

2. The graphite flakes of Greinke are heated until they expand between about 80 and 1000 times their original volume. Then said expanded graphite is compressed and roll pressed into graphite sheets (column 7 line 45-65).

3. Also see EP 0824134 A1 as evidence of a wide variety of identical to substantially similar compounds added to graphite material for fire retarding and would be expected by one of ordinary skill in the art based on the teachings of Greinke and Olstowski to be suitable for intercalating graphite material to make it fire retardant or otherwise resistant to higher temperatures (see figures and claim 8) or used as a treatment for similar applications. In which case EP '134 notes that it is not limited to the cited examples but can be any water insoluble phosphorous compounds (see page 4); which would include substantially similar compounds to those claimed by applicant.

11. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over von Bonin reference (US 5,382,387) in view of EP 0824134 A1.

12. The von Bonin reference (US 5,382,387) teaches a graphite material having phosphate (additional binders) and ortho-phosphoric acid (Col. 1, Lines 45-52 and column 2, Lines 45-54), and discloses the wt. % of the expanded graphite being 100-5%

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by weight (Col. 2, Lines 16-20). Note that because the wt. % of the graphite is. 100-5%~ the wt % of the phosphorus compound will be 0-95%.

13. The graphite can be expandable or pre-expanded graphite (Column 2 lines 5-20) expanded or expandable to 50 to 600 times its volume (column 1 lines 10-15).

14. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide an organic phosphorus compound and make the heat-resistant material contain 0.1 to 10.0 wt. % of said organic phosphorus compound and 90.0 to 99.9 wt. % of said expanded graphite in order to provide good binder properties (von Bonin, Col. 1, Lines 55-57).

15. The reference, discussed above, is silent as to the claimed structures of claims 8-12.

16. EP 0824134 A1 teaches a wide variety of identical to substantially similar compounds added to provide fire retarding properties or otherwise provide resistance to higher temperatures (see figures and claim 8). In which case EP '134 notes that it is not limited to the cited examples but can be any water insoluble phosphorous compounds (see page 4); which would include substantially similar compounds to those claimed by applicant.

17. It would also have been obvious to a person of ordinary skill in the art at the time of the invention to use phosphorous compounds, including those claimed in applicant's claims 8-12, because a large majority of organic phosphates are taught by von Bonin and EP '134, and known to one of ordinary skill, the compounds being capable of use as an intercalating solution; or as a binder or fire retardant and heat resistant additive,

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wherein the phosphates add to the mechanical stability and long term durability when employed in moulds in temperatures above 450 degrees C (see von Bonin column 1 lines 25-40). Therefore, absent a showing of criticality or unexpected results with respect to the claimed compositions it would be expected based on the broadly taught and used compounds available as oxidation agents, intercalation processes, that any organic phosphate would be appropriate for use in the current invention including those claimed by applicant. It would have been obvious to a person of ordinary skill in the art to vary an oxidative protective $-R$, $-OH$, or $-H$ groups and still achieve a phosphoric acid or ester with protective and expansive properties at high temperatures as claimed. No patentable distinction is seen.

Response to Arguments

18. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

19. Applicant has not otherwise responded to the rejection of claims 8-12 in any substantive way nor has applicant responded to the Von Bonin rejection (see above).

Therefore, these rejections have been in part maintained.

4. The double patenting rejections have been maintained since applicant has chosen not to address those rejections substantively.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL MILLER whose telephone number is (571)272-1534. The examiner can normally be reached on M-FTh.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks be reached on (571)272-14011. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel Miller

/KEITH D. HENDRICKS/

Supervisory Patent Examiner, Art Unit 1794